

U.S. Patent Application Serial No. 09/995,802  
Attorney Docket No.: 011606  
EXPEDITED PROCEDURE

### **REMARKS**

Claims 1-12 are pending in the application.

#### **Information Disclosure Statement**

Regarding the Information Disclosure Statement, a specific authorization authorizing the Office to charge Deposit Account No. 01-2340 was stated in the cover letter dated August 23, 2002. Therefore, the IDS should have been considered by the Office. Consideration of the IDS as of the filing date of August 23, 2002 is respectfully requested.

#### **Personal Interview**

A personal interview was conducted between Supervisory Patent Examiner Eddie Lee, Examiner Chris Chu and the Undersigned Attorney on May 23, 2003. The careful attention the Examiners paid to the instant application is appreciated.

During the personal interview, the Undersigned Attorney explained that conduction is known to be a much more effective way of heat transfer than convection. As shown in Fig. 10B of Hattori, the heat source comes from light emitting part 7. To effectively dissipate heat generated therefrom, a heat sink should be in contact with the heat source 7. However, the Office alleged heat source 6 is quite a distance away from the heat source 7, it is clear that this is because Hattori does not intent sub-substrate 6 to be a heat sink.

Furthermore, the heat source 7 is taught not to be in contact with the Office alleged second heat sink 1. Should the optical-fiber-aligning guide substrate 1 intended by Hattori to be a heat sink, Hattori would have taught that light emitting part 7 should be in contact with guide 1, because conduction is a much better heat transfer method than convection.

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Regarding Ochiai, the Undersigned Attorney pointed out that glass tube 5 is not known to be a good heat conductor.

During the personal interview, the Undersigned Attorney proposed the language “metallic contact”, the Examiners agreed that this would overcome the rejections. However, upon conferring with the Applicant, the Applicant much prefer the language “thermally preferred joining.” A telephonic interview was conducted with Examiner Chu regarding the Applicant’s proposal, the Examiner indicated that it is fine however she needs to review the claims before rendering a final decision.

#### **Claim Objections**

**Claim 6 is objected to due to informality.** The kind Office suggestion is adopted with appreciation.

#### **Claim Rejections under 35 USC §103**

**Claims 1, 2, 4, 5 and 10-12 are rejected under 35 USC 103(a) as being unpatentable over Hattori in view of Ochiai.**

In rejecting the claimed invention, the outstanding Office Action has specifically stated that:

“Hattori does not discloses at least a part of an electrode for the first-conduction-type semiconductor of the semiconductor light emitting element being in contact with the first heat sink, and the first heat sink and the second heat sink being in contact with each other in a junction overlooking one of the two side planes which do not compose the facets of the cavity in the semiconductor light emitting element.”

The Applicant agrees with the Office assessment of the shortcoming of Hattori. The outstanding Office Action further stated that:

“Hattori discloses in Figs. 5 and 1 OB a semiconductor light emitting device comprising:

- at least one semiconductor light emitting element (7) of edge-emission type, a first heat sink (6) and a second heat sink (1),
- at least a part of an electrode (19) for the second-conduction-type semiconductor of the semiconductor light emitting element (7) is in contact with the second heat sink (1).”

The Applicant respectfully disagree. It is clear that this Office Action has creatively interpreted Hattori for no other purpose than to reject the claimed invention. What the Office Action regards as a first heat sink (1) is objectively disclosed by Hattori as a guide substrate. What the Office Action regards as a second heat sink (6) is objectively disclosed by Hattori as a sub-substrate not a heat sink. The paragraph of column 5, lines 26-43 and Fig. 1 and 2 clearly indicate that the component (6) is a sub-substrate having wiring parts (10) which are electrically connected to the light-emitting diode array of an edge-emitting type (LEDA) (2) by wires (11). A person skilled in the art readily understand that the component (1) in Fig. 10B is not a heat sink, either. The paragraph of column 5, lines 26-43 and Fig. 1 clearly indicate that the component (1) is an optical-fiber-aligning guide substrate which merely fixes the optical fibers (5) in the v-shaped grooves (4). Furthermore, the paragraph of column 9, lines 7-35 and Fig. 9B and 10B indicate that Hattori avoids contacting the light emitting part (7) with the component (1) in order to protect the light emitting part (7). Hattori does not intend that the component (1) works as a heat sink. Thus, heat sinks are not disclosed in Hattori.

What the Office Action regards as an electrode (19) for the second-conduction-type semiconductor is simply a duplication of the Applicant's own claim language, for the Office Action never identified in Hattori that there is a first-conduction-type semiconductor and a

second-conduction-type semiconductor distinction; therefore, it is illogical for the Office Action to pinpoint with definitiveness that Hattori has disclosed a second-conduction-type semiconductor. The hindsight reconstruction to pick and choose among isolated disclosure in the prior art to deprecate the claimed invention is clearly exposed. In this regard, it is well settled that:

"One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

With the above-mentioned defects of the primary reference Hattori, the Office Action attempted to supplement the defects by stating that:

"However, Ochiai disclose in Fig. 1 at least a part of an electrode for the first-conduction-type semiconductor of the semiconductor light emitting element (1) being in contact with the first heat sink (2a), and the first heat sink (2a) and the second heat sink (2b) being in contact with each other in a junction overlooking one of the two side planes which do not compose the facets of the cavity in the semiconductor light emitting element. Thus, it would have been obvious to one of ordinary skill in the art at the time when the invention was made to modify Hattori by using the first heat sink as taught by Ochiai. The ordinary artisan would have been motivated to modify Hattori in the manner described above for at least the purpose of providing a high external quantum efficiency (read PURPOSE, lines 13)."

In interpreting Ochiai, the Office Action has identified with definitiveness of a first-conduction-type semiconductor. Again, the Office is merely duplicating the language of the claimed invention rather than collecting objective disclosure of the prior art, for the Office Action has never identified a first conduction type semiconductor and a second conduction type semiconductor distinction in Ochiai.

In addition, there is simply no disclosure or teaching of at least a part of an electrode for the first-conduction-type semiconductor of the semiconductor light emitting element being in contact with the first heat sink, and the first heat sink and the second heat sink being in contact with each other in a junction overlooking one of the two side planes which do not compose the facets of the cavity in the semiconductor light emitting element.

More specifically, The Examiner states in Section 9 that Ochiai discloses in Fig. 1 that the first heat sink (2a) and the second heat sink (2b) are in contact with each other. As is clear from Fig. 1, these two heat sinks are not directly contacted with each other. The first heat sink (2a) is in contact with the glass tube (5) and the glass tube (5) is in contact with the second heat sink (2b). Since it is well known that glasses are poor heat conductors, Hattori does not intend heat conduction from the first heat sink (2a) to the second heat sink (2b), and vice versa. It is clear that Hattori does not suggest the basic idea and the structural feature of the claimed invention.

Section 2143 of the MPEP has specifically stated that:

“To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claimed limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 466, 20 USPQ2d 1438 (Fed. Cir. 1991)”

It is respectfully submitted that the Office has not established a *prima facie* case of obviousness, because, 1) there is not any suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify

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the reference or to combine reference teachings; 2) there is not any reasonable expectation of success in following the suggestion as stated in the outstanding Office Action; 3) the teaching or suggestion to make the claimed combination and the reasonable expectation of success cannot both be found in the asserted prior art.

For the foregoing differences and further in view of the explanation provided during the personal interview, independent claim 1 patentably distinguishes over the asserted prior art. All claims dependent thereon also patentably distinguish over the asserted prior art. Reconsideration and withdrawal of this rejection are respectfully requested.

Solely for the purpose of advancing the prosecution of this application, independent claim 1 has been further amended to include the language "thermally preferable joining".

**Claim 3 is rejected under 35 USC 103(a) as being unpatentable over Hattori and Ochiai as applied to claim 1 above, and further in view of Ishikura.**

In rejecting the claimed invention, the outstanding Office Action has specifically stated that:

"Hattori and Ochiai disclose the claimed invention except for the surface of the first heat sink which is kept in contact with the semiconductor light emitting element having an effective electro-conductivity with at least one surface which is not kept in contact with the semiconductor light emitting element."

The Applicant respectfully disagree that Hattori and Ochiai disclose the claimed invention except the noted features and elements. In fact, Hattori and Ochiai in combination

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contain many other defects as noted above. Therefore, even if Hattori, Ochiai and Ishikura are combined exactly as suggested in the Office Action, the claimed invention would not result.

Reconsideration and withdrawal of the rejection are respectfully requested.

**Claims 6-8 are rejected under 35 USC 103(a) as being unpatentable over Hattori and Ochiai as applied to claim 1 above, and further in view of Saito.**

In rejecting the claimed invention, the outstanding Office Action has specifically stated that:

“Hattori and Ochiai disclose the claimed invention except for a space being provided in the vicinity of the junction of the first heat sink and the second heat sink, into which an adhesive used for joining the first heat sink and the second heat sink.”

The Applicant respectfully disagree that Hattori and Ochiai disclose the claimed invention except the noted features and elements. In fact, Hattori and Ochiai in combination contain many other defects as noted above. Therefore, even if Hattori, Ochiai and Saito are combined exactly as suggested in the Office Action, the claimed invention would not result.

Reconsideration and withdrawal of the rejection are respectfully requested.

**Claim 9 is rejected under 35 USC 103(a) as being unpatentable over Hattori and Ochiai as applied to claim 1 above, and further in view of Oota.**

In rejecting the claimed invention, the outstanding Office Action has specifically stated

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that:

“Hattori and Ochiai disclose the claimed invention except for at least one of the electrodes of the semiconductor light emitting element having an Au layer having a thickness of 30 to 100 nm.”

The Applicant respectfully disagree that Hattori and Ochiai disclose the claimed invention except the noted features and elements. In fact, Hattori and Ochiai in combination contain many other defects as noted above. Therefore, even if Hattori, Ochiai and Oota are combined exactly as suggested in the Office Action, the claimed invention would not result.

Reconsideration and withdrawal of the rejection are respectfully requested.



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**CONCLUSION**

Claim 1 and 6 have been amended in order to more particularly point out, and distinctly claim the subject matter to which the Applicants regard as their invention. It is believed that this Amendment is fully responsive to the Office Action dated **April 8, 2003**.

In view of the aforementioned amendments and accompanying remarks, all pending claims are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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